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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,448

11/24/2008

Samu Taulu

032700-9

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78198

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10/06/2010

Studebaker & Brackett PC

One Fountain Square

11911 Freedom Drive, Suite 750

Reston, VA 20190

EXAMINER

HUNTLEY, DANIEL CARROLL

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

10/06/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,448	Applicant(s) TAULU ET AL.	
	Examiner DANIEL HUNTLEY	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 1-11 are objected to because of the following informalities: In claim 1, line 3, the phrase ‘... a dynamic phenomenon a signal associated with ... in which method the measurement...’ is missing punctuation. Please revise for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the co-ordinates" in line 14. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the person" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the magnetic pieces" in line 3. There is insufficient antecedent basis for this limitation in the claim.

In claims 5 and 10, applicant asserts that the claim element ‘means of spherical ...’ in claim 5 or “means of the measurement signals’ in claim 10 are means (or step) plus function limitations that invoke 35 U.S.C. 112, sixth paragraph. However, it is unclear whether the claim

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elements are means (or step) plus function limitations that invoke 35 U.S.C. 112, sixth paragraph, because ‘means for’ is not present in the claim. If applicant wishes to have the claim limitations treated under 35 U.S.C. 112, sixth paragraph, applicant is required to:

(a) Amend the claim to include the phrase “means for” or “step for” in accordance with these guidelines: the phrase “means for” or “step for” must be modified by functional language and the phrase must **not** be modified by sufficient structure, material, or acts for performing the claimed function; or

(b) Show that the claim limitation is written as a function to be performed and the claim does **not** recite sufficient structure, material, or acts for performing the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph. For more information, see MPEP § 2181.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 5, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,408,178 (Wikswow('178)).

In re claims 1-2, 5, and 8, Wikswow('178) teach a method of signal processing which is used to separate from a signal, registered using a measuring instrument that measures a dynamic phenomenon, a signal associated with a static source in the measurement object, in which method the measurement object and the measuring instrument move with respect to one another, characterized in that the measurement object is movable intentionally and unlimitedly, and that determining the movement of the measuring instrument and the measurement object with respect to one another based on the signals measured using the measuring instrument (col 12, lns 35-43); presenting the signal in the co-ordinates attached to the measurement object, whereby the signal produced by a static source is detected as a static signal (col 13, lns 25-30); and separating the device signals from the measured object signals (col 6, lns 45-60). The examiner notes that Wikswow('178) do not expressly teach separating static signals from measurement signals or that the positions are determined in real time., but separating signals of varying field strength or other parameters is well-known in the field of magnetometers and would have been an obvious technique in the absence of any further showing of criticality or unexpected result. Further, in the field of magnetometers, Avrin('779) teach cancellation of the applied field [0030]-[0031] which the examiner interprets as describing 'signal separation' and that the instrument operates in real-time to facilitate telemedicine procedures [0050].

Hence, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the signal processing method and device disclosed by Wikswo('178) with the magnetometer/SQUID device disclosed by Avrin('779) in order to separate and detect an object's movement during a procedure in order to cancel out random movement/noise that negatively affects the desired measurement signal.

In re claims 7 and 11, the examiner notes that the use of high-pass filters is a well-known expedient in the signal processing art for separating signals having distinguishable components such as frequency.

In re claim 9, Wikswo('178) and Avrin('779) teach the invention as described above, and further Avrin('779) teach the use of a patient intentionally moving eyes to enhance sensitivity ([0046]).

In re claim 10, Wikswo('178) and Avrin('779) teach the invention as described above, and further Avrin('779) teach the detection and positioning of ferromagnetic foreign bodies within the object (abstract; [0008]; [0046]).

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wikswo('178) and Avrin('779) as applied to claim 1 above, further in view of US 7,062,391 B2 (Wilson('391)).

In re claims 3-6, Wikswo('178) and Avrin('779) teach the invention as described above except for expressly teaching modeling the measurement movement and presenting the signal as elementary fields attached to the measurement object. Further, they fail to teach the use of spherical harmonic functions or minimum norm estimates. However, in the field of biomagnetic measurement, Wilson('391) teach a method of modeling magnetic fields for calculating

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inadvertent motion during a procedure (abstract) utilizing spherical harmonic functions (col 4, lns 1-15) and minimum norm estimates (col 4, lns 48-55). Hence, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the signal processing method and device disclosed by Wikswo('178) and the magnetometer/SQUID device disclosed by Avrin('779) with the method for motion compensation as disclosed by Wilson('391) in order to separate and detect an object's movement during a procedure in order to cancel out random movement/noise that negatively affects the desired measurement signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL HUNTLEY whose telephone number is (571)270-1217. The examiner can normally be reached on Monday through Friday, 7:30-4, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/
Supervisory Patent Examiner, Art Unit
3737

/DANIEL HUNTLEY/
Examiner, Art Unit 3737